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DBT-NII RECEIVES TRADEMARK FOR INDIA'S FIRST INDIGENOUS TUMOUR ANTIGEN SPAG9

Relevant for: Science & Technology | Topic: Science and Technology- developments and their applications and effects in everyday life

Cancer kills8.51 lakh people in India every year (International Agency for Research on Cancer, 2020,Globocan). As per World Health Organization (WHO), one in 10 Indians will develop cancer during their lifetime, and one in 15 will die of cancer. Therefore, it is all the more critical to make extraordinary breakthroughs and innovations for this deadly disease. To successfully implement innovation newer modalities for cancer treatment, researchers at the New Delhi-based National Institute of Immunology (NII), an Autonomous Institute of Department of Biotechnology (DBT),and clinicians at Cancer Institute, Adyar, Chennai have been working together to translate new scientific discoveries into improved care for cancer patients. Over the past twodecades, this team has been engaged in translating breakthrough that promises to add a highly potent weapon to the armoury against cancer especially employing targeted cancer Immunotherapy. India's first indigenous tumour antigen SPAG9 was discovered by Dr Anil Suri in 1998who is heading the Cancer Research Program at NII. In a recentdevelopment, theSPAG9 antigen has received the trademark ASPAGNII^{TM}. Currently, ASPAGNII^{TM} is being used in dendritic cell (DC) based immunotherapy in cervical, ovarian cancer and will also be used in breast cancer.

Immunotherapy is a new approach that exploits the body's inner capability to put up a fight against cancer. With this approach, either the immune system is given a boost, or the T cells are "trained'' to identify recalcitrant cancer cells and kill them. In this personalised intervention,those patients expressing SPAG9 protein can be treated with DC-based vaccine approach. In DC-based vaccine, patient's cells called monocytes from their blood are collected and modified into what are called dendritic cells. These dendritic cells are primed with ASPAGNII^{TM} and are injected back to the patient to help the 'fighter' cells, or T-cells, in the body to kill the cancer cells. DC-based immunotherapy is safe, affordable and can promote antitumor immune responses and prolonged survival of cancer patients.

The Department of Biotechnology has funded Cancer Research Program. Dr Anil Suri said, "we are thankful to DBT for giving us the platform and the necessary support to work all these years."Dr Suri's collaboratorDr. T Rajkumar, MD, DM, head of molecular oncology,is conducting clinical trials in cervical cancer patients at Cancer Institute, Adyar, Chennai. Dr T Rajkumar has been funded by the Department of Science and Technology, Government of India, to establish the Centre for Cancer Immunotherapy and to undertake these cancer trials.Also,Dr Suri and Dr T Rajkumar have been funded to undertake clinical trials using Dendritic cell-based vaccine in 75 recurrent/metastatic ovarian cancer stage IV patients employing ASPAGNII^{TM} funded by the India Council of Medical Research (ICMR). Further with the funding support of the Department of Biotechnology in future, employing ASPAGNII^{TM}, a phase 2 randomised controlled clinical trial to evaluate the role of metronomic chemotherapy and dendritic cell vaccine in recurrent hormone receptor-negative breast cancer will also be initiated at Cancer Institute, Adyar.

The ASPAGNII^{TM} is a true example of translational cancer research and the Atmanirbhar Bharat

spirit. It will eventually be helpful to patientsin India and the world. This will be a real morale boost in affordable, personalised,and indigenous products for cancer treatment.

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